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ABSTRACT

A system of teaching based on the principles of the Token economy was developed. This system allowed students to choose not only the pace at which they would advance through a curriculae but also allowed them the choice of output mode (paper versus tests) and areas of concentration. By rewarding student participation in helping to find educational resources and in supervised grading, it was possible to run individualized courses without resort to paraprofessors. Responses to standardized professor evaluation forms were noticeably superior to either concurrent control classes or previous control courses. In the two courses for which results are reported either significant increases in student productivity or shifts in student responses to evaluation forms from too hard to too easy for the same work output were found. It was suggested that the reported learning-theory based class format of the point system might allow both effective teaching and a flexible, creative educational environment. (Author)

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APPLICATIONS OF CONTINGENCY MANAGEMENT PRINCIPLES TO THE COLLEGE CLASSROOM: THE CON GAME PROJECT

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APPLICATION OF CONTINGENCY MANAGEMENT PRINCIPLES TO THE COLLEGE CLASSROOM: THE CON GAME PROJECT

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With the rapid increase in the variety and frequency of applications of Behavioral Modification principles into a wide range of environments it seems appropriate that learning Psychologists should put into practice what they teach. At the present time only a limited literature is available relating to uses of learning theory in the college classroom. Notable exceptions include Keller's[1] individualized courses and the work of Richard Mallot[2] at Western Michigan. Common to most previous individualized courses is the practice of teaching to a specified set of behavioral objectives. The present author feels that such narrowly prescribed goals may in fact stifle intellectual curiosity of a broader sort. Another limitation of most existing systems for college teaching based upon behavioral modification principles is the neccessity for small tutorial groups employing various para-faculty. In the author's college and in many colleges such help is not available. While it is true many authors have reported both increased work output and increased student satisfaction using learning theory derived teaching systems, it may be suggested that student satisfaction my be more the result of interaction with the faculty and para-faculty than any effect intrinsic to the uses of learning principles.

For these reasons the present author has been engaged during the past year in experimentation with systems of contingency management compatible with most college learning environments.

The systems developed were designed to minimize punishment contingencies in the classroom, to smooth out the normal student fixed interval scallop response pattern resulting from fixed deadlines, to reward the student for showing initative and creativity in planning her/his own learning objectives in a systematic manner, and to reduce the anxiety attendent upon ambiguity of grading criterion with clearly defined levels of effort for the grade desired by the student.

The core of the initial program used with an Comparative Animal Behavior course was the specification of those behaviors identified by previous students or by the professor as relating to good learning experiences. These behaviors were assigned "point weights" and consequented through the medium of a token-point system payable in grades and special experiences (parties etc.). Both required and supplemental learning experiences were systematically reinforced. Students were shaped towards functional behaviors by consequating successive approximations towards the desired final response (as giving tokens for 3 x 5 cards adequately summarizing readings as the first behavior necessary for being informed during discussions and being able to produce high quality research papers.). Bonus rewards were made available to encourage students to continue working once they had obtained their desired grades.

The results of the first course taught using a point system were compared with data from the identical non-point system course as taught in the previous year. An increase of 37% in work output per student (papers, fieldtrips, articles read etc.)

and a 25% increase in positive responses to a standardized course evaluation were found. Comparisons with another course I taught during the same quarter that the point system was introduced were equally favorable to the point system course. As much as possible the point system course and the concurrent Introductory Psychology course were made as equalized in terms of instructor time invested, audio-visual aids employed, and extra helps provided. It must be noted that initial student reaction to the Contingency Management course was quite negative. Hence the final positive evaluations reflected considerable attitude change in many student regarding an intellectual experience within a behavioristic framework.

As a result of extensive analysis of the Animal Behavior Course, a second token-type system was developed for application to a course in Learning Theory. As a result of the systematic systems analysis the normal classroom structure of a set number of required tests and/or papers was modified to reward a very wide range of behaviors judged to be related to learning. These included training animals, optional tests and papers, student presentations, behavior simulation exercises and games, locating films related to learning, conditioning demonstrations, and fieldwork in contingency management. Students also changed bad habits and worked to modify behaviors that interfered with good discussion groups. Some students elected to attend evening sessions to be trained as "Behavioral Technicians" and subsequently to modify contra-productive discussion behavior in their fellow students as well as to guide other students in the use of basic Skinner box control electronics. The only limitations were the point requirements for a given grade and a reasonable distribution requirement to insure that at least some tests and papers were completed in a satisfactory manner.

In looking at the results of the second token system it soon became apparent that work output increases in comparison to the Learning Theory course of the previous year showed no dramatic increases. However in the evaluations from the non-token course two students had rated the workload as "unreasonable" and none had rated the workload as too light. In the token condition students did slightly more total work per student but gave four ratings of "too light a workload" and no ratings of "unreasonable". Of the 40 students in the Point system learning course five reached the bonus level of performance which required the student to do 25% more work than that required for a grade of "A". In addition student ratings of the course and the professor were up 21% over the previous non-point system teaching of the same course.

It is apparent that even given the bias inherent in any procedure in which th- experi menter and the teacher are the same person that dramatic changes in student performance and attitude were found. Further use of Point systems has tended to confirm the effectiveness of the point systems.

As with any new teaching technique initial systems do require some "debugging". Important problems included tendancies of students to minimize formal written work in favor of other types of efforts, too great demands on instructor time to administer the system, and negatively conditioned attitudes of some students. However because of the systematic nature of the point system it is possible to solve many of these problems in an experimental fromework by careful shifting of the point contingencies. For example: written work can be increased by both minimal requirements for high grades and by altering the reward contingencies, drains on instructor time can be mitigated by rewarding students for assisting in grading, and initial hesitancy can be often overcome by offering large rewards for doing work during the first two weeks of the quarter.

In regard to the prevalent anti-behaviorist bias of many students discussions of the actual freedom of choice and encouragement of creative effort as well as the objectivity of point systems can help produce more balanced student attitudes.

In short I believe that my research with point systems for college teaching suggest that such systems offer an effective, practical method to improve student performance, and attitudes. In addition they provide a coherent means by which student creativity and initative can be rewarded and they reduce the professor's reliance on punishment contingencies to motivate students.

1) Keller, F. S., "Goodby Teacher...", Journal of Applied Behavior Analysis, 1968, 1, 79-90.

2) Malott, R. W., Contingency Management in Education, (Second Edition), 1972, Behaviordelia, Kalamazoo, Mich.

TABLE 1, Work outputs of Token and Non-Token Comparative Animal Behavior Courses. All numbers represent averages/student. N (Non-Point system)= 40, N (Point System)= 34.

	NON-POINT	POINT
Articles Read	17.6	26.1
Field Trip Days	2.7	4.9
Animal Observations Recorded	5.9	15.1
Papers Turned In	3.9	2.4
Student Initative/ Creative Inputs	.3	1.3
Total Work Units	30.4	49.8

TABLE 2, Student Responses (as percentages) to a Standardized Professor/Course Evaluation Form.

EVALUATION QUESTION	NON-POINT	POINT
Communication Ability		
Excellant	13	58
Good	83	42
Poor to Bad	03	00
Class Freedom		
Encourages	81	100
Allows	19	00
Other	00	00
Classroom Organization		
Always Good	10	63
Usually Good	61	33
Confusing	26	04
Terrible	03	00
Professor as Inspiration		
Inspired beyond Required	13	48
Greater Appreciation	57	38
Interest Maintained	20	10
Interest Lower or Lost	10	04
Effective use of A-V Aids		
Yes	80	100
Was Professor Concerned?		
Very	54	83
Moderately	46	17
Was Professor Fair?		
Yes	85	100
Is the Professor...		
Very Valuable	36	83
Valuable	54	17